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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,851	04/18/2005	Patrice Tremble	PA1312	3970

28390 7590 07/23/2007

MEDTRONIC VASCULAR, INC.
IP LEGAL DEPARTMENT
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EXAMINER	
CHEN, SHIN LIN	

ART UNIT	PAPER NUMBER
1632	

NOTIFICATION DATE	DELIVERY MODE
07/23/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

rs.vasciplegal@medtronic.com

Office Action Summary	Application No.	Applicant(s)	
	10/531,851	TREMBLE ET AL.	
	Examiner	Art Unit	
	Shin-Lin Chen	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5-7,9,10,15-19 and 29-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-7,9,10,15-19 and 29-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *4-18-05 & 5-21-07* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's amendment filed 5-21-07 has been entered. Claims 1, 9, 10 and 15 have been amended. Claims 3, 4, 8, 11-14 and 20-28 have been canceled. Claims 29-33 have been added. Claims 1, 2, 5-7, 9, 10, 15-19 and 29-33 are pending and under consideration.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 2, 5-7, 9, 10 and 15-19 remain rejected and newly added claims 29-33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention and is repeated for the reasons set forth in the preceding Official action mailed 1-22-07. Applicant's arguments filed 5-21-07 have been fully considered but they are not persuasive.

Applicants argue that claim 1 has been amended to recite vector for gene therapy and the at least one protein is chosen from a group consisting of a collagen isoform, an A1 apolipoprotein isoform and an A1 apolipoprotein mutant milano isoform. Applicants cite page 2 line 19 to page 3 and page 11 lines 18-23 of the specification, and argue that the specification teaches the correlation between the gene therapy agent encoding at least one protein and the vulnerable plaque associated with a blood vessel (amendment, p. 7-8). This is not found

persuasive because of the reasons set forth in the preceding Official action mailed 1-22-07. The specification only discuss a prophetic gene therapy method of treating a vulnerable plaque associated with a blood vessel of a patient by administering a gene therapy agent encoding at least one protein to a target cell population via in vivo or ex vivo administration (e.g. p. 5, 12-18). The claims still encompass using any vector expressing a collagen isoform, A1 apolipoprotein isoform, or mutant Milano isoform, for treating any vulnerable plaque associated with a blood vessel in a patient, and each of the collagen isoform, the A1 apolipoprotein isoform, and mutant Milano isoform encompasses a genus of structural variants of corresponding wild type protein. The specification fails to provide adequate guidance and evidence for how to treat any vulnerable plaque associated with a blood vessel in a patient with any vector expressing at least one protein of collagen isoform, the A1 apolipoprotein isoform, and mutant Milano isoform so as to provide therapeutic effect in vivo or ex vivo. The biological function of a protein was unpredictable at the time of the invention from mere amino acid sequence. The specification fails to provide specific guidance and evidence that the collagen isoform, A1 apolipoprotein isoform and mutant Milano isoform would have the biological function of collagen or A1 apolipoprotein and those isoforms would be able to treat any vulnerable plaque associated with a blood vessel ex vivo or in vivo. There is no evidence of record that any vector expressing at least one of the recited proteins would be able to treat any vulnerable plaque associated with a blood vessel in vivo or ex vivo.

The specification also fails to provide adequate guidance and evidence for how to administer a vector expressing at least one of the recited proteins to treat any vulnerable plaque associated with a blood vessel in a patient via various administration routes in vivo or ex vivo

such that therapeutic effect can be obtained for treating said vulnerable plaque. The claims encompass using any vector expressing at least one of the recited proteins to treat a vulnerable plaque associated with a blood vessel via various administration routes, including oral administration, intravenous administration, intraperitoneal administration, direct injection, infusion, intramuscular injection, subcutaneous administration, and intramedullary administration etc. Gene therapy in vivo or ex vivo was unpredictable at the time of the invention and numerous factors complicate in vivo gene therapy with respect to predictably achieving levels and duration of gene expression which have not been shown to be overcome by routine experimentation. These include, the fate of the DNA vector itself (volume of distribution, rate of clearance into the tissues, etc.), the *in vivo* consequences of altered gene expression and protein function, the fraction of vector taken up by the target cell population, the trafficking of the genetic material within cellular organelles, the rate of degradation of the DNA, the level of mRNA produced, the stability of the mRNA produced, the amount and stability of the protein produced, and the protein's compartmentalization within the cell, or its secretory fate, once produced. These factors differ dramatically based on the vector used, the protein being produced, and the disease being treated. The specification fails to provide adequate guidance for how to overcome any of the above unpredictable parameters in the gene therapy art such that one would be able to obtain sufficient expressed protein to provide therapeutic effect in target cell population in a patient. It is important to note that treatment encompass complete amelioration of symptoms associated with the vulnerable plaque associated with a blood vessel. The specification fails to provide adequate guidance for how the administration of a vector expressing at least one of the recited proteins to a target cell population via various

administration routes would be able to provide therapeutic effect for treating said vulnerable plaque ex vivo or in vivo.

Applicants cite page 14 line 9 to page 17 line 11 and Figures 4 and 5, and argue that the specification teaches how to administer at least one gene therapy agent encoding at least one protein to treat a vulnerable plaque associated with a blood vessel (amendment, p. 8, 2nd full paragraph). This is not found persuasive because of the reasons set forth in the preceding Official action mailed 1-22-07 and the reasons set forth above. Although it was known hot to administer a vector expression a protein to treat a vulnerable plaque associated with a blood vessel, however, the biological function of a protein was unpredictable at the time of the invention from mere amino acid sequence and gene therapy in vivo or ex vivo was unpredictable at the time of the invention as discussed above. Thus, the claimed invention is not enabled and one skilled in the art at the time of the invention would require undue experimentation to practice over the full scope of the invention claimed.

Applicants argue that claim 1 has been amended and no undue experimentation is required to practice the claimed invention (amendment, p. 8, last paragraph). This is not found persuasive because of the reasons set forth in the preceding Official action mailed 1-22-07 and the reasons set forth above.

Conclusion

No claim is allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shin-Lin Chen whose telephone number is (571) 272-0726. The examiner can normally be reached on Monday to Friday from 9:30 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Paras can be reached on (571) 272-4517. The fax phone number for this group is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of

the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

Shin-Lin Chen, Ph.D.

SHIN-LIN CHEN
PRIMARY EXAMINER